PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

91936306

Applicant's or agent's file reference 99P1403P	**FOR FURTHER ACTION**	SeeNotificationofTransmittalofInternational Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/DE00/00626	International filing date *(day/month/year)* 01 March 2000 (01.03.00)	Priority date *(day/month/year)* 12 March 1999 (12.03.99)

International Patent Classification (IPC) or national classification and IPC G06F 11/36

Applicant	SIEMENS AKTIENGESELLSCHAFT

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of _____8_____ sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of _____4_____ sheets.

3. This report contains indications relating to the following items:

   I ☒ Basis of the report

   II ☐ Priority

   III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   IV ☐ Lack of unity of invention

   V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   VI ☐ Certain documents cited

   VII ☒ Certain defects in the international application

   VIII ☐ Certain observations on the international application

Date of submission of the demand 01 September 2000 (01.09.00)	Date of completion of this report 27 June 2001 (27.06.2001)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

Form PCT/IPEA/409 (cover sheet) (July 1998)

I. Basis of the report

1. With regard to the **elements** of the international application:*

☐ the international application as originally filed

☒ the description:

pages   2-10   , as originally filed

pages   , filed with the demand

pages   1,1a   , filed with the letter of   23 May 2001 (23.05.2001)

☒ the claims:

pages   , as originally filed

pages   , as amended (together with any statement under Article 19

pages   , filed with the demand

pages   1-9   , filed with the letter of   23 May 2001 (23.05.2001)

☒ the drawings:

pages   1/3-3/3   , as originally filed

pages   , filed with the demand

pages   , filed with the letter of

☐ the sequence listing part of the description:

pages   , as originally filed

pages   , filed with the demand

pages   , filed with the letter of

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language   which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to n velty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-9	**YES**
	Claims		**NO**
Inventive step (IS)	Claims		**YES**
	Claims	1-9	**NO**
Industrial applicability (IA)	Claims	1-9	**YES**
	Claims		**NO**

2. Citations and explanations

1 **The following document is referred to:**

D1: EP-A-0 470 322 (BULL HN INFORMATION SYSTEMS) 12 February 1992

2.1 As explained below, the subject matter of **Claim 1** does not involve an inventive step within the meaning of *PCT Article 33(3)*.

D1 describes a process for monitoring a program having the following features of the process defined in **Claim 1**:

a) (i) A program distributed over the system is monitored.
The program described in D1 consists of two processes: (D1: page 5, lines 12-15). A process is defined in D1 as an autonomous execution unit that has its own memory space and independently accesses the system components (D1: page 2, lines 12-13).

The monitoring program described in D1

consists of three monitoring processes -
"keyboard monitor", "main monitor" and
"background monitor" - monitoring the
program, which consists of two processes
(D1: page 5, lines 25-31).

a) (ii) Semantic correctness is tested using
preset <u>algorithms</u>.
In D1 several instances of semantic
correctness are tested using preset
algorithms. Examples include:
1. The "main monitor" tests whether a
message originates from a current
process (D1: page 8, lines 50-53),
2. The "main monitor" tests the semantic
correctness of the command received (D1:
page 9, lines 11-12), and
3. The "background monitor" tests the
semantic correctness of requests (D1:
page 9, lines 55-56).

b) The program is expanded by an
instrumentation part.
In D1 a pre-processor inserts instructions
into the source code of the program to be
monitored. The inserted instructions
request a function "x-F" (D1: page 3,
lines 7-12). The function "x-F" is added
to the source code and the expanded source
code is compiled (D1: page 4, lines 18-
22). Thus, in D1 the instrumentation part
introduced into the program consists of
the function request and the function "x-
F".

c) The instrumentation part generates a message
and communicates it to a monitoring
process.
In D1 the function "x-F" has *inter alia*
the purpose of generating suitable
messages and transmitting them to the
"main monitor" monitoring process (D1:
page 3, lines 9-14, and page 7, lines 30-
37).

d) The monitoring process triggers an action.
In D1 on receipt of the message the "main
monitor" monitoring process triggers
actions: for example, the event associated
with the message is displayed on the
monitor (D1: page 7, lines 51-55, and page
9, lines 3-4).

In addition, **Claim 1** defines the following two
features, which are not explicitly disclosed in
D1:

e) A plurality of messages is presented as a
list, a dendrogram or a message flow
diagram.

f) Semantic correctness is tested using preset
<u>heuristic techniques</u>.
In contrast, D1 discloses only that
semantic correctness is tested using
preset <u>algorithms</u>.

Feature e) addresses the technical problem of
presenting messages and proposes three known
types of presentation as a solution. Such an

obvious choice from a series of known
possibilities does not involve an inventive
step.

Feature f) addresses the technical problem of
improving algorithms. The use of heuristic
techniques, which build on assumptions and
accelerate problem solving, is a current
practice in programming algorithms. Therefore,
the use of heuristic techniques to improve
algorithms, thereby yielding the subject matter
of **Claim 1**, is obvious to a person skilled in
the art.

2.2 As explained below, the subject matter of dependent
Claims 2-9 is either disclosed in D1 or obvious to a
person skilled in the art. The subject matter of
Claims 2-9 therefore does not involve an inventive
step within the meaning of *PCT Article 33(3)*.

2.2.1 D1 discloses the features of **Claim 2**:

The "main monitor" monitoring process can trigger
the following actions on receiving a message:

a) The event associated with the message is
displayed on the monitor (D1: page 7, lines 51-
55, and page 9, lines 3-4).

b) Intervention in the operation of the program.
In D1 after the function "x-F" has transmitted
a message to the "main monitor" monitoring
process, it waits for a reply from the
monitoring process (D1: page 7, lines 36-39).
The status of various commands is communicated

with this reply, said status determining the future operation of the function "x-F" and the program requesting the function "x-F" (D1: page 7, line 51 - page 8, line 5).

c) Control and/or regulation of a unit associated with the program.
In D1 after the function "x-F" has transmitted a message to the "main monitor" monitoring process, the monitoring process generates and updates various units associated with the active programs: for example, a list of active processes, a break point table (D1: page 7, lines 51-55). Thus, programs may, for example, be incorporated in the test sequence and break points within a program may be activated or deactivated.

2.2.2 Further, D1 describes the features of **Claim 3**:

As explained in 2.1, the instrumentation part in D1 consists of a function request and a function "x-F". In D1 after the function "x-F" has transmitted a message to the "main monitor" monitoring process, it waits for a reply from the monitoring process (D1: page 7, lines 36-39).

2.2.3 Further, D1 discloses the features of **Claim 4**:

In D1 the "main monitor" monitoring process automatically communicates a reply message "ACKN" to the waiting function "x-F" (D1: page 7, lines 51-55). In addition, control options are available whereby the function "x-F" waits for an explicit message (D1: page 7, line 55 - page 8, line 11).

Said explicit message is input by the user via the keyboard (D1: page 9, lines 8-18).

2.2.4 **Claim 5** stipulates that the program is part of a larger program. This is a known and obvious possibility in program structuring and therefore cannot be considered inventive.

2.2.5 **Claims 6 and 7** merely define the parts of a program (functions and middleware) that are instrumented. These program parts represent only some of several obvious possibilities from which a person skilled in the art would choose, without thereby being inventive.

2.2.6 **Claim 8** merely defines the mechanisms that are monitored when the program is run. These mechanisms represent only some of several obvious possibilities from which a person skilled in the art would choose, without thereby being inventive.

2.2.7 **Claim 9** determines merely that the method may be used to test, control or service a technical system.

Such an obvious choice from a group of obvious possibilities does not involve an inventive step.

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

1.1   Contrary to *PCT Rule 6.3(b)*, the independent claim has not been drafted in the two-part form with reference to the prior art.